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ECONOMIC CONSIDERATIONS IN ESTABLISHMENT OF ALASKA'S PERMANENT FUND

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I. INTRODUCTION

The following report was prepared under a contract between the State of Alaska Legislative Affairs Agency and the University of Alaska Institute of Social and Economic Research. Its object was to explore some of the fundamental economic questions involved in establishing the structure and policies for the permanent fund authorized by a 1976 amendment to the Alaska Constitution. Research for this report was devoted mainly to an initial exploration of the question to what extent capital markets serving Alaska are reasonably efficient, and consisted largely of unstructured and unsystematic interviews with businessmen on both sides of those markets --- officers of financial institutions and other investors and lenders, and corporate officers and entrepreneurs in Alaska industries or with Alaska interests.

In line with the contract between the Legislative Affairs Agency and ISER, the study and report were to be "...in the nature of a general reconnaisance, and need not involve the collection or processing of original quantitative data." Among the tasks of the study, however, was to prescribe "the analytical and policy issues" which deserve further investigation in depth. A number of the issues raised in this report do warrant collection and processing of original data. In line with the report's terms of reference, I have not proposed final conclusions on any of the six interrelated questions set out in the contract, but have only attempted to explore and define them sufficiently to propose how the Legislature might proceed with such investi-

gations, particularly some quantitative testing of the hypotheses offered here.

Uses of the Permanent Fund

Public officials, "experts" of various kinds and voters generally have envisioned several different purposes for an Alaska permanent fund. The constitutional amendment which authorized the fund reflects a consensus that at least one-fourth of Alaska's non-recurring mineral leasing revenue should be excluded from the regular stream of state spending. A corollary of this consensus is that the fund should be profitably invested to give state government a permanent stream of revenue independent of current mineral leasing income and independent of economic conditions in the state generally. Because state government spending is a large part of Alaska's economic base (and will grow proportionately larger as tax and royalty income from North Slope oil begins to flow), the spending of income from permanent fund investments and their respending in Alaska's private economy could have a stabilizing effect on employment and income in the state.

There is little doubt that the operation of the fund would have the effect of reducing the immediate fiscal impact of oil and gas income and a stretching out and smoothing of its long-term impact, however the fund is organized and whatever its investment strategy. But the size of these impacts will depend on how much of the permanent fund's capital is invested or lent in Alaska and on what terms. Given certain assumptions about

the size and structure of the state's economy, the revenues committed to the fund, the yields of the fund's investments and the disposition of income from those investments, we can forecast its effect on the shape of long-term growth of state product, personal income, employment and per capita income. Some elementary projections of this sort have already been made by ISER under the Man in the Arctic Program.

Beyond this, there is little agreement on the proper purposes or the long-term effects of permanent fund investment strategies, and there has been little examination of the economic fundamentals which determine whether these purposes can actually be achieved by an instrument by the fund, or what its actual effects (intended and unintended) are likely to be. Apart from the purpose of delaying and smoothing the fiscal impact of non-recurring mineral leasing revenue, other goals that have been suggested for the permanent fund are to accelerate the growth of the state's non-oil economy and at the same time to expand state government's non-oil tax base.

In pursuit of this end it is usually assumed, and there seems to be a near-consensus in the unofficial statement of legislators, that permanent fund moneys invested or lent in Alaska be confined to creditworthy projects and enterprises, and at market rates and terms. If capital markets in Alaska (and in the United States) are workably efficient, however --- and my investigation so far suggests that they are --- investment of permanent fund moneys in Alaska will have exactly the same effect on the state's economy as investing them outside Alaska.

(The quality of the fund's investment portfolio may, however, be affected by the choice.) That is, permanent fund money would tend to replace the same amount of money that otherwise would have been provided from private financial sources.

Unless it provides capital subsidies, permanent fund activity will not accelerate growth of non-oil industry and thereby diversify the state's economy. If capital markets are generally efficient, moreover, non-subsidized permanent fund outlays would not tend to smooth out Alaska's business cycle or the growth rate of employment and population, even if there were no other fundamental difficulties (treated in part IV of this report) in using state investment policy as a counter-cyclical tool. In the absence of capital subsidies, any attempt to disperse economic activity or to foster rural industries will also tend to be futile if the absence of growth in rural Alaska or in particular small communities is a result of factors other than the failure of financial institutions to bring enterprise and investors together on mutually acceptable terms. If poverty or stagnation is caused by deficiencies in natural resources, the skills or attitudes of the labor force, transportation, communications and energy costs, or an unsatisfactory institutional environment, the permanent fund cannot cure these ills, nor even mitigate them unless it is treated as a source of capital available for investments which will not meet market tests.

II. CAPITAL MARKET EFFICIENCY

Every proposed strategy for Alaska's permanent fund depends

upon stated or unstated assumptions about the "efficiency" of national or international capital markets. The proposition that Alaska as a whole, certain regions of Alaska, or certain Alaska industries suffer a chronic capital shortage which can be remedied by permanent fund investment strategy amounts to saying that existing capital markets do not, in fact, function efficiently.

By "efficiency" in the capital market we mean the ability of loanable or investible funds to move readily in and out of Alaska, among industries and among different kinds of capital instruments of different term and risk (common stocks, bonds, loans, etc.) in response to the differences in anticipated yields.

The most important elements of capital market efficiency are mobility, cost and information. Legal limitations on the flow of loanable funds can clearly reduce capital market efficiency as defined here (though there may be good social reasons for the restrictions). An example of a legal restriction on the mobility of capital for social reasons, the federal government limits the rate of interest payable by banks and thrift institutions on savings deposits, in order to channel funds to, and reduce interest costs for, the residential mortgage market (but it also restricts the funds available to savings institutions). The fees of brokers, underwriters, lenders, and "finders" of venture capital, and taxes such as capital gains and stock transfer taxes also increase the cost of moving funds from one investment to another. A lack of competition can both erect barriers to capital mobility and increase transactions costs.

The element of capital market efficiency most often held to be deficient in Alaska is information. If funds are to move easily and at competitive rates of return from areas or industries with cash flow surpluses to those with excess demand for capital, entrepreneurs must know where equity and debt money is available and on what terms, and potential investors or lenders must have the means to appraise the earning capacity and risk of the ventures they are asked to underwrite.

Capital mobility, transactions costs and the adequacy of information are all a function of market size and diversity (which is in turn a function of market size). A region with large and diversified capital demands will attract a large number of financial institutions of different kinds, who will serve as intermediaries between entrepreneurs and investors or lenders. They will compete among one another for business, thereby lowering capital transactions costs to ultimate borrowers and lenders. And most critically, they will make it their business to understand the industries and kinds of enterprises they serve and their local and regional economies, thereby increasing market information necessary to evaluate individual ventures.

This issue has important implications for the permanent fund's investment strategy. If capital markets serving Alaska business are workably efficient, permanent fund moneys dedicated to Alaska investment will have no impact on the aggregate level of investment (and thereby the rate of economic growth), the industrial structure, or on the profitability of investment in Alaska, unless

these moneys are offered on subsidized terms. Loans from the permanent fund at market rates would simply displace private capital that would otherwise be available at the same rates. The only material result might be a reduction in the diversity--and thereby safety--of the permanent fund's own investment portfolio because it would be imprudently concentrated on Alaska issues and unduly sensitive to business fluctuations special to the state.

If, on the other hand, institutional barriers to capital movements, excessive fees or taxes on capital transactions, or inadequate information result in a shortage of capital for Alaska ventures at normal market terms, then it will indeed make a significant difference to Alaska's economy how much of the permanent fund is allocated to investment within the state. The conclusion that investment strategy would, in fact, make a difference need not necessarily carry with it the implication, however, that the difference would be great, or cost-effective or even in the right direction. To the extent there are demonstrated inefficiencies--barriers, costs or ignorance--in Alaska's capital markets, it may well be cheaper and more effective to remedy those problems directly rather than to offset them with permanent fund investments.

The paridigm (pattern of concepts and theories) of capitalistic finance presented in business school textbooks is one of efficient capital markets. Within the terms of this paradigm, it is very unlikely that Alaska could suffer a chronic capital shortage. Outside investors and lenders, in their search for

the highest rates of return consistent with a given degree of security, would make an effort to discover investment opportunities in the state, while entrepreneurs with Alaska interests would shop the world's capital markets for venturers or lenders of funds on appropriate terms. Whatever lack of information existed about capital sources, the particular industry, Alaska's institutions or business conditions, or regarding the particular firm could be remedied at a price, and at least for large ventures, that price would be relatively small compared to the funds involved. A variety of financial intermediaries and investment services would compete with one another to bring together borrower and lender or entrepreneur and investor, and to furnish either side with needed information. This competition would increase capital mobility and lower both transactions costs (the spread between the yield to lenders and the cost to borrowers, for example) and the cost of information.

Capital market efficiency is obviously a relative matter. The mobility of funds is seldom totally unfettered; there are almost always fees and taxes or other transactions costs; and information itself comes only at a price and is never perfect. The relevant questions here are to what extent and for what regions and industries in Alaska are capital markets significantly less efficient than elsewhere in the national economy and to what extent, if at all, can the investment strategy of the permanent fund remedy or offset these inefficiencies.

Alaskan Capital Markets

In my conversations with businessmen inside and outside of Alaska, it appeared that bankers and officers of financial institutions generally, officers of large corporations, successful real estate developers and the most successful entrepreneurs in contracting, tourism and fishing tended to "believe in" the efficient markets paradigm and conduct their businesses as if it were an accurate view of the world. It is true that several of them spoke of a national "capital shortage"; the reference is to the aggregate effect of high taxes and inflation, and few of the businessmen in these categories seem to believe that there is a shortage of investment or debt capital peculiar to Alaska or to their own industries. The officers of banks, finance companies and other money market institutions believe that their companies actively seek out investment opportunities in Alaska and consistently denied that they insisted on higher rates of return or greater security for Alaska issues. Two West Coast bankers active in Alaska stated a belief that it was probably easier to place large issues generated by their Alaska correspondents than comparable issues from California or Washington State because of the widespread confidence in Alaska's wealth and continued industrial growth. Two corporate officials made a similar observation, one of them alluding to the "glamor" of Alaska investment.

Officers of national or multinational corporations in petroleum, mining and fish processing indicated that for them, the procedures, problems and costs involved in the financing of Alaska

ventures were for all practical purposes identical with those for financing comparable ventures in the Lower 48 or in other politically stable advanced capitalist states. Their own sources were national and international, and their ability to raise funds rested in part on the overall strength and reputation of the company, and in part on their ability to communicate to potential investors and lenders the reasons (resource base, engineering cost estimates, market factors, etc.) why they themselves believed that the proposed Alaska investment was sound. One successful developer scoffed at the notion of an Alaska information gap: "Information, salesmanship--that's what business leadership, what you call entrepreneurship is all about. It's your job as a developer to get all the information your banker needs into his hands. Make him as confident about your project as you are yourself."

Many small businessmen including, it appears, most prospectors, inventors, independent merchants, and operators of hotel, restaurant and other tourist-related businesses outside of Anchorage, and some contractors do not, however, believe in the efficient markets paradigm. I heard many complaints about treatment by banks and finance companies and a feeling that "the system" is biased against small businessmen and against Alaskan enterprise. I heard anecdotes purporting to show that even Alaska banks favor outside-owned businesses. Many persons in this group expressed a hope that the permanent fund could correct this bias and make more funds available for ventures like their own. It was especially noteworthy to me

that most state and federal civil servants in the economic development or business assistance field expressed views more consistent with the capital shortage paradigm than with that of efficient markets and believed that government should provide more financial assistance to private industrial development in Alaska. Whether or not these sentiments express an accurate view of the way in which the economy and financial markets operate, it seems likely that it is a more representative view than the more sophisticated textbook, "big business" view of capital markets, and constitutes a substantial political constituency for an activist policy by the permanent fund's managers.

In preparing this report, I encountered several instances where entrepreneurs or corporate managers were working on financing a fisheries, mining or tourist venture, a shopping center or a residential subdivision. Those in this group who seem to accept the efficient markets paradigm regarded it as the essence of their own job as a developer or manager to assemble and integrate the necessary information on resources, markets, costs, economic and environmental regulation and to draft credible profit and loss projections and pro forma financial statements acceptable to their corporate boards or to outside investors or lenders.

A common situation among small and medium Alaska business enterprises seems to be a rate of growth (with sales increasing at 20 to 100 percent per year) that leads to a need for additional fixed and working capital far outstripping internally generated

cash flow. It is "obvious" to the owners and operators of these businesses that money borrowed to sustain this growth would earn a very good rate of return, but that there is never enough credit available. Businessmen in this situation seem to express two strikingly different attitudes toward their own "capital shortages." Those who operate by the efficient markets paradigm (and these seemed generally to be the most successful) expressed their problems objectively in terms of necessary cash flow and debt-equity ratios acceptable to lenders, while there were others who attributed their cash crunch to the institutional incapacity of financial institutions to serve their kind or business, or to the laziness, ignorance or malice of particular lenders.

It is clear that there are widely contrasting perceptions among Alaska businessmen and others about the adequacy of financial institutions and the supply of capital to Alaska ventures. Curiously, the distribution of these perceptions seems to be bimodal; that is, they cluster at one extreme or the other with only a scattering of individuals in the middle. Perceptions also seem to be highly correlated by industry and by size of enterprise. In general the bigger the firm, or the faster it is growing, the more satisfied its spokesmen are with existing capital markets. Without exception, representatives of large financial enterprises doing business in Alaska and of large national and multinational corporations spoke as if they believed in efficient markets and, without exception, they rejected the notion that lack of informa-

tion, high transactions costs or institutional barriers created a capital shortage in Alaska or in the industries with which they are connected or whose financial needs they serve.

On the other hand, hardly any local merchants, service industry operators or tourist business operators outside of Anchorage and Fairbanks, and hardly any entrepreneur or developer who was still trying to put together his first "big deal" (capitalized at $1 million or more), believed that financial institutions operated efficiently or fairly, and most of them felt that Alaskan enterprise was at a substantial disadvantage compared with firms in the same business elsewhere. As I mentioned before, almost every public official interviewed believed that there was an Alaska capital shortage that could, and should, be treated by application of government money. Anchorage and Fairbanks merchants, contractors and real estate developers seem to fall into both groups, as do operators of independent businesses connected with forestry, fisheries and mining.

The time and resources available for preparing this report did not make it possible to separate perceptions and ideology from reality. Each group's perceptions were supported with convincing anecdotes. Nevertheless, most of the correlations between attitude and situation were predictable, and the perceptions surely contain a measure of self-interest and self-justification. Officers of financial institutions who have the job of searching out and appraising investment opportunities are likely to believe

that their jobs are useful and effective, and they are unlikely to emphasize the problems of those kinds of enterprise that they do not serve (and which may not, in fact, be served well by any sector of the capital market). And it is not surprising that public officials feel that government financial and technical assistance (like economic regulation) is essential to a healthy business economy. But among businessmen, are the first group satisfied with the status quo because it served them well, or are those who accept, understand, and work easily within the status quo the people who are for that reason most likely to succeed as corporate managers and entrepreneurs?

My own provisional conclusions on the issue of capital market efficiency are as follows, but they are subject to modification on the basis of a quantitative study of attitudes and actual workings of the financial system in Alaska:

1. Investors and entrepreneurs, would-be lenders and would-be borrowers alike believe that the existing capital market institutions are adequate to finance large industrial or commercial developments in oil and gas, mining, petrochemicals, fisheries, timber, trade, and tourism anywhere in Alaska. I have found utterly no reason to doubt this consensus, and see no way in which the permanent fund could improve on the mobility of capital, transactions costs, or the information made available to investors by the sponsors themselves and through existing financial institutions.

It follows, therefore, that the permanent fund's investment activity in these areas will not significantly influence the profitability or growth of basic industry in Alaska unless loans are made at less than current market rates or under less secured terms (e.g., more highly leveraged, lower coverage rates, less collateral) than is customary. If the permanent fund invests in Alaska industrial ventures at market rates and terms, therefore, it will divert private capital elsewhere that would otherwise be attracted to the venture. In short, there is no need and no useful function for permanent fund investment in major industrial or commercial enterprise in Alaska, unless there are grounds to subsidize that enterprise.

2. Despite the disagreement of those who do not believe in the efficient markets paradigm, the working and fixed capital requirments of residential and commercial real estate developers, contractors, retail and wholesale merchants and purveyors of services in Fairbanks and Anchorage are being served by existing banks, thrift institutions, finance companies, mortgage brokers and the like, in exactly the same way and at approximately the same rates and under the same conditions as in other communities throughout the nation.

Some businessmen will always have grievances against their bankers (and many Alaskan businessmen have some gruesome yet convincing tales to tell) or against the financial system gen-

erally. But Anchorage and Fairbanks banks do compete aggressively for business customers, and some of the "atrocity" stories can be attributed to understandable disagreements over the creditworthiness of a particular borrower or venture rather than a systematic failing of the system. Again, apart from any argument that a particular line of business or kind of investment ought to be subsidized, there seems to be no case for the permanent fund or one of its subsidiaries to enter the commercial capital markets in these communities. I am not certain at this point how well these needs are being served in other urban places in Alaska.

3. Several alternatives exist for financing the purchase or lease of standardized machinery used in business, including motor vehicles, construction equipment, aircraft, boats, electrical generators, compressors, machine tools and the like. Commercial banks, finance companies, credit unions, manufacturers and vendors all offer some kind of financing for this kind of chattel, and one or more of these forms of financing seems to be available to creditworthy borrowers in any Alaska industry or location. Higher servicing and collection costs do tend to limit borrowers in the more remote areas of Alaska to higher interest rate alternatives, but on balance this reflects not a failure of the market to reflect true costs but the opposite, it does not constitute a case for permenent fund involvement in the install-

ment credit business, unless there is also a case for a capital subsidy to rural enterprise generally.

4. The general feeling of local businessmen in small communities and rural areas of Alaska is that they face a genuine capital shortage and that they are at the mercy of one or two financial institutions that are indifferent to their aspirations or the facts of their business situation. There seems to be some merit to these complaints. Lending in small towns or the bush is exceptionally expensive, however; the cost of investigating and servicing small commercial, real estate and installment loans and lease purchase contracts and the like, and the costs of collection, foreclosure, repossession and resale can easily exceed the potential earnings from loan fees and interest. These excess cost burdens, together with unfamiliarity with local conditions, understandably make the statewide (Anchorage and Fairbanks) banks and other financial institutions reluctant to provide capital even for the larger locally-owned development, such as resorts, hotels, apartment houses, fish processing plants, etc., and where they do make loans they are willing to finance a smaller portion of total investment. In these cases, governmental participation or guarantees (EDA, SBA, Farmer's Home, Alaska Veterans loans, etc.) have often been essential to obtaining conventional private financing. This portion of the demand for capital in Alaska may then be a legitimate area for permanent fund activity.

In sumamry, it appears that most attempts of the permanent fund to serve as a development bank for Alaska would duplicate

functions that private financial institutions (backed up in many cases by other governmental assistance programs, e.g., FHA, Farmer's Home, VA, etc.) perform or are capable of performing adequately. At this stage in my investigation, I have been able to identify only one function in which a new public financing source might function better than the current machinery of the private capital market, and that is in provision of commercial credit and financing of small and medium scale industrial and commercial enterprises in small communities and rural areas.

III. SUBSIDIES AND SOFT LOANS

Diversification of Alaska's economy is widely regarded as a desirable goal for state policy and as a proper purpose of permanent fund strategy. The benefits argued for such a policy are reduction of economic fluctuations and creation of a permanent employment, income and revenue base not dependent upon oil and gas or other exhaustible resources. The line of reasoning in the previous section of this report suggests that the existing concentration of Alaska economic activity by region tends to reflect real resource location and cost factors (such as transportation expense and small market scale) rather than capital market failures. It appears that a reduction of existing barriers to capital mobility and improving information flows would not necessarily accelerate the rate of development in Alaska fisheries, agriculture or tourist industries, for example, or in rural Alaska generally.

Making capital more readily available at lower rates to Alaska enterprise generally could be expected to increase investment in all sectors of the state's economy, but there is no reason to believe that it would influence the concentration of investment in the desired direction, that is, in favor of economic diversification or geographical dispersion (if the latter is indeed a desirable objective). Lower capital costs would likely have their biggest impact precisely where development would proceed most rapidly in any event. If investment activity is already concentrated in oil and gas-related activity, fish processing and in Anchorage residential and commercial real estate development, that is probably where more abundant, cheaper capital would go. There is a strong confirmation of this proposition in the investment behavior of the rural-based regional and village corporations.

Making capital cheaper and easier to obtain will undoubtedly have one effect which may be regarded as counterproductive; business will be given an added incentive to substitute capital for labor and the state's economy will tend to become more capital intensive than it otherwise would be. If investment policy is to be in any way directed toward "job creation," it must be highly selective and not simply a matter of lowering capital costs across the board.

If the legislature deems it desirable to influence private investment in Alaska in the direction of greater economic diversification by means of permanent fund investments, it will have to authorize the fund's managers to make loans to the favored

types of venture on terms other than those of the private market. There is a serious question, however, how many new ventures will be made feasible simply by a reduction of interest rates on borrowed capital below customary rates. There is in fact good reason to believe that investment demand in new speculative industrial, agricultural or tourist-related development are relatively insensitive to interest cost. This is becuase private investors are not likely to commit their own equity to such ventures unless they have a prospect of recovering their total investment in five years or less. Such an outcome requires an annual cash flow equal to 30 to 50 percent on total investment, a situation in which two or three percentage points interest expense is seldom crucial. More important parameters are the standards for the creditworthiness of the venture and requirements for equity and collateral. In other words, it is likely to be more critical for a new venture in fish processing or tourism whether it can borrow three-fourths rather than two-thirds of its total requirements, than it is whether the interest rate on that loan is 9 or 12 percent.

In this situation, subsidized loans by the permanent fund can without question have an influence on the shape and direction of economic growth in Alaska, and that influence will be greater the greater the proportion of permanent fund moneys devoted to the favored types of enterprise. The form the subsidy is likely to take to make it effective, however, will not be (and should not be) lower interest rates, but rather a

relaxation of lending standards to enhance the availability of funds. One danger here, even if the legislature deliberately authorizes the fund's managers to make such loans, is that the nature and the degree of actual subsidy may not begin to appear for many years, until it begins to show up as defaults on principal and interest payments. This danger will be aggravated if, as is often the case with governmental loan programs, there is not a rigorous policy of classifying problem loans and of promptly writing off those which are uncollectable. Banks and thrift institutions are required by law and regulation to do this, but even there the requirement is only very loosely implemented or enforced, because lending officers are reluctant to expose their own imprudence in making bad loans or to write down the capital position of their institutions.

In any event, there is sure to be some opportunity for the permanent fund to influence the sectoral and geographic direction of economic development in Alaska by manipulation of credit terms. The most aggressive (and in conventional terms, imprudent) lending policy cannot, however, create an industry where resources, markets, skilled labor and other requisites are missing, and the fund's managers should never become so "soft" as to finance enterprises whose promoters are not taking a substantial risk themselves, or which do not have convincing prospects of long-term viability.

The most relevant model of a development bank for Alaska is not the IBRD (the World Bank) or the regional development banks, but the International Development Agency, the World Bank's "soft

loan" subsidiary. If the permanent fund is to direct the shape of economic growth in Alaska, it will not be through normal commercial investments on normal commercial terms, but through a postponed or hidden subsidy in the form of higher loss rates in future years. This is not the appropriate place to judge the desirability or assess the ultimate beneficiaries of capital subsidies directed at changing the structure of Alaska's economy, but the Legislature may well wish to assure that those implicit subsidies are not totally hidden, by setting out (or requiring the fund's managers to set out) explicit and rigorous standards for the granting, servicing, classification and writeoff of soft loans, and by requiring a rigorous annual audit of the fund's loan quality.

There is another dimension to the capital subsidy issue which the Legislature should keep in mind as it authorizes any soft or subsidized loan program under the permanent fund. Granting credit at terms more liberal than the market will almost certainly make some enterprises viable that would not otherwise be so, but it is difficult to draw lending standards in such a way that other ventures which would be viable anyway do not recieve a windfall that serves no social purpose. This consideration suggests a policy that might be adopted toward the soft loan program --- that loans under this program be made at rates perceptibly above market rates (as is appropriate to the greater risk). If my earlier observation is correct that speculative investment in Alaska is more sensitive to the degree of leveraging permitted than to interest rates as such, higher interest rates would

screen out some of those enterprises which did not need assistance from the fund and would at the same time help build up a reserve for loan losses to offset the subsidy aspect of the program.

IV. COUNTER-CYCLICAL INVESTMENT

There are several possible concepts of the permanent fund as an economic stabilization device for Alaska. The one basic concept of the fund on which there is a near-consensus is that it is to be regarded as a savings account for a "rainy day." That is, Alaska's government is about to experience an extraordinary surge of income from oil and gas royalties that is not likely to be sustained. Since petroleum revenues will not only be the main source of general government income but will for some time be a principal support for the private economy and the main engine of economic growth, the permanent fund would be used to reduce the injection of income into the state's economy during the boom phase, and then the income from investing these revenues would be used to sustain state expenditures and their fiscal impacts after the boom has ended.

It has also been suggested that the permanent fund could help even out short-term business fluctuations in Alaska, or maintain long-term economic growth (as measured by the growth of state product, real personal income or employment) at some optimum rate. Such stabilization policies could in principle operate through varying appropriations to the permanent fund, working through the fiscal impacts of general fund expenditures;

through varying the permanent fund's rate of new lending in Alaska, working through the fiscal impact of investments supported by these loans; or with both appropriation and investment policy. The basic principle is simple: when the state's economy was booming, larger appropriations would be made to the permanent fund (thereby reducing revenue available to the Legislature for general fund outlays) and/or a smaller proportion of permanent fund assets would be invested within Alaska. When the state was in a recession, the flows would be reversed: less revenue would be appropriated to the permanent fund and more to the regular capital and operating expenses of state government, and/or the permenent fund would inject more investment money into the Alaska economy (presumably by selling off non-Alaska investments in its portfolio).

There are, however, both conceptual and practical problems with using the permanent fund as a stabilizing device on any more sophisticated basis than is implied by the "savings account" notion. One of them has been identified previously --- to the extent that existing financial institutions make up a reasonably efficient capital market, the volume of unsubsidized loans or investment the fund makes in Alaska may not have a significant effect on economic activity in the state.

Even if there were significant capital market deficiencies which gave permanent fund outlays a real effect on aggregate investment in Alaska, or even if the fund had a policy of subsidizing Alaska business (thereby expanding the level of investment

beyond what it otherwise would be), it is still not obvious whether a policy of varying state expenditures or permanent fund investment in response to economic conditions would in fact reduce business fluctuations in the state, increase them or be on balance neutral. The crucial question here is the relationship between our ability to forecast economic conditions or recognize cyclical turning points, and the time it takes for a change in appropriations or in lending policy to show up in unemployment rates or rates of economic growth.

Some very gross economic changes, such as the buildup and decline of pipeline construction activity, obviously could be anticipated and their fiscal effects projected with some degree of confidence. But the Alyeska pipeline is likely to be historically unique in size and specific gravity in the state's economy. Future ups and downs are more likely to be the resultant of a number of smaller influences, many of which (general business confidence, for example) cannot be mapped out in advance and are difficult to quantify even retrospectively. If booms and recessions often cannot be recognized clearly until after they have been with us awhile, and their turning points recognized only after they have passed, it is also true that significant delays are inevitable between the recognition of a new trend, the fiscal action that is appropriate and the actual movement of new dollars into (or out of) the private economy. Depending upon the relative lengths of the various lags, attempts to stabilize Alaska's economy or smooth its growth rate might be successful, but it seems equally likely that state fiscal policy would zig when it

should be zagging, that the amplitude of the business cycle would thereby be increased, or even that the permanent fund's intervention could create oscillations in the state's economy where otherwise there would be none.

It is not obvious which of these outcomes would in fact result from an attempt to use the permanent fund as a stabilizing influence. The effect would depend in part on whether it was appropriations, lending or both which were being varied, and what economic indicators were being used to trigger policy changes. A business cycle model could be developed which would simulate the behavior of Alaska's economy under the influence of various decision rules.

Intuitively, I expect that such a model would show that the various lags in recognizing trends and implementing policy, and in the actual economic impact of that policy, would preclude using the permanent fund to offset economic fluctuations with a term of less than about three years. If the fund is to be useful as a stabilizing device, it will probably be only as an instrument to regulate growth rates in very gross terms and only in the very long run. If, for example, the social impacts of a continuing growth rate in employment below 2 percent per year or above 8 percent were determined to be unacceptable, the legislature might conceivably key permanent fund appropriations or investment policy to the average growth of employment in Alaska over the previous five years, with the understanding that no individual year's growth is ever likely to be on track because of the fund's policies, and that excessive growth in one year might be offset by

stagnation in another, or vice versa. It is likely, in other words, that long-term stability in growth rates might be achieved at the expense of greater instatiliby in the short run.

The practical problems in establishing a stabilization policy for the permanent fund are political and administrative. If permanent fund appropriations (and their complement, operating expenditures from the general fund) are to be varied, it is the Legislature which would have to vary them. While there would be little difficulty persuading the executive branch to propose and the Legislature to authorize increases in capital and operating expenses during a recession if money is readily available to be committed, it may be too much to expect a sharp reduction in outlays to offset an economic boom in the state, particularly when revenues and "needs" have both been increasing at exceptional rates precisely because of the boom. The fate of the state government's announced interest to "stockpile" public works projects until the end of the Alyeska construction boom should be instructive on this point. It is not clear, moreover, that the managers of the permanent fund would be immune from similar pressure with respect to their lending and investment policies, if they were granted the discretion to alter those policies according to economic conditions in the state.

V. PUBLIC ENTERPRISE

Another suggested use for permanent fund moneys is to finance public works projects. The works most often proposed are hydroelectric plants and fisheries improvements such as hatcheries and

habitat enhancement. These two examples are of course quite different; electrical generating facilities can be and usually are self-supporting from the sale of power. The principal reason for governmental investment in such facilities, ideology aside, is the exemption from federal taxes of the income of a public utility and of the interest it pays on its debt. This very consideration suggests that revenue bonds of the Alaska Power Authority or other governmentally owned utilities would not be an appropriate permanent fund investment, because the permanent fund (whose own income is tax exempt) could be expected to earn a higher rate of return from investments in taxable federal or corporate bonds than the Power Authority would have to pay in interest or its own tax-exempt bonds, assuming that the securities were equally rated. This consideration does not, however, necessarily foreclose the permanent fund from providing all or a part of the equity component of Power Authority capital (and in earning a rate of return appropriate to the risk taken by an equity investor), or from providing a guarnatee of Power Authority bonds, or from subsidizing electric power development.

The crucial characteristics of some public works, such as hatcheries and habitat improvement, is that they cannot be financed conventionally. Benefit-cost analysis may well show that the new benefits to society exceed the capital and operating outlays, but the burdens and the benefits may not fall on the same people, and it may be impractical (or impolitic) to collect a user charge from the beneficiaries. In the case of these fishery-related investments, however, costs could be allocated at

least roughly among the beneficiaries through a surcharge on fishing licenses, entry permits or raw fish taxes. If such capital improvements are not to be funded this way, however, they seem more appropriate subjects for general fund appropriations than as "investments" by the permanent fund.

VI. ISSUES FOR FURTHER INVESTIGATIONS

This report has identified a number of questions whose answers are crucial if the Legislature is to develop appropriate policies for operation of the permanent fund. At most, however, the author has been able to give only tentative answers to these questions. The following is a list of issues that warrant further investigation, together with some discussion of methods and sources.

1. Capital market structure, costs and efficiency. A survey is necessary of the number, size and aggregate Alaska activity (e.g., loans made, loans outstanding, loans being serviced) for various institutions in the financial market, with offices both inside and outside of Alaska. Questionnaires and interviews would be used to determine the relative weight of each of these institutions in financing different industries in Alaska and their policies regarding various types of Alaska business.

A survey is necessary to determine just what is the price of money in Alaska and how does this price (together with other credit conditions) differ from those elsewhere in the United States. A large body of aggregate data comparing Alaska conditions with those in other states is available in the commercial bank call reports; some information is available by major loan

categories (real estate, commercial and installment). The absolute level of these rates is less indicative than their relation to rates in other Western states and particularly the trend of any Alaska rate differential. Any differences in other loan terms (for example, requirements for compensating balances) would have to be based upon questionnaires or systematic interviews with lending officers.

Similar questions can appropriately be asked about differences in the rates and conditions for various categories of credit as between the urban centers of Alaska, and small communities and rural areas. The quickest approximation to an estimate of geographic differentials could be obtained by comparing loan statistics for the outlying branches of statewide banks with those of their urban offices. A hypothesis that deserves investigation is the proposition that retail credit markets are more competitive and more efficient than "wholesale" markets in Alaska. If this is the case, channelling the permanent fund's Alaska lending through existing financial institutions could result in large, unearned windfalls to the banking system without significantly benefitting Alaska borrowers. It would be instructive to see what happened to the "spread" between the interest cost of public deposits to Alaska banks and their interest earnings on real estate loans, for example, as a result of the Alaska preference provision in management of the state's North Slope bonus money. A similar question can be asked about the actual effect of the state's purchases of residential mortgages, after loan fees are taken into account.

2. Demand for investment and for loanable funds. A sample survey and detailed case studies should be undertaken of the financial structure and the procedure of financing fish processing plants, hotels and other relevant investment projects in Alaska. The contrasts, if any, in structure, procedures, costs of capital for individual components of financing (interim construction, working capital, etc.) should be noted and the appropriate implications drawn. The importance of capital financing costs to overall project costs is an important element in judging the potential sensitivity of investment demand to interest rates.

The investment demand schedule for individual industries ought to be investigated. The question here is to what extent will a reduction in the interest rate to a particular group or for a particular purpose result in an increase in the level of investment. The question is difficult to answer generally because the shape of the curve relating investment outlays to interest rates will differ for each subcategory of investment and will be affected by a large number of other factors. Builders of national econometric models have spent much time trying to specify investment demand functions with only limited success, however. The data base modeling Alaska investment demand is very limited because there are almost no satisfactory statistics that can be used as indicators of investment activity, with the partial exception of residential construction. The more productive approach would be to model individual projects--even fictional projects--in the way the Delta barley project was analyzed.

3. Aggregate impacts of different policies toward permanent fund appropriations and investments. The percentage of eligible funds that should be channelled into the permanent fund is of central importance. Not only will the future growth of the state's economy be determined to some extent by the choice of eligible permanent fund investments, but perhaps more importantly, it will be determined by the amount of money remaining in the general fund for unrestricted use. Specifically, Department of Revenue analysis of state revenues presented in February, 1977, projected a permanent fund balance of $1.8 billion in 1985 based upon a 25 percent contribution rate. The same source projected a general fund balance in excess of $6 billion in the same year. Increases in spending above the historical pattern of state government expenditures would have a downward effect on the total remaining in the general fund, but the balance can be expected to remain substantial.

The possibility of such a large general fund balance requires that the choice of the percentage of oil revenue dedicated to the permanent fund reflect the expected impacts of the uses of the general fund balance as compared with the impacts of administration of that money through the permanent fund.

For example, one way to make use of the general fund balance would be to reduce the personal income tax. The ISER MAP analysis shows that this would indeed cause a significant reduction in the general fund balance. At the same time, it would have a highly stimulative effect on the private sector as the increase in

disposable income stimulated private sector demands. Employment and population would increase. Additional revenues would be generated, but these would not be sufficient to maintain constant per capita government expenditures. Either the level of services would have to decline or the general fund balance would be depleted more rapidly than initial calculations indicated, or both. If the permanent fund is to be a buffer against the depletion of the general fund, or is interpreted as a fund to benefit Alaskans, the expansion generated by the income tax could be the worst possible use of general fund money.

The growth implications of any constant percentage permanent fund contribution needs examination. Lumpy additions into the general fund caused by lease sales on state lands may be accompanied by bursts in general fund spending activity by the state. This erratic behavior could result in uneven growth and its problems. A formula for permanent fund contributions, which minimizes fluctuations in the general fund, might be a more appropriate rule than a fixed percentage.

Projections of the state fiscal position are important in the formulation of permanent fund policy in another way. Knowledge of what is happening to the general fund can determine permanent fund objectives. A large general fund balance, for example, tends to reduce the force of the argument that certain industry should be stimulated because of the tax base it provides.

The MAP model can be of assistance in the formulation of permanent fund policy in this regard because it can be used to project "futures" under varying assumptions of general fund policy given a "neutral" permanent fund. The state model can be used for this purpose.

A related issue is what policy should be established with regard to disposition of interest from the permanent fund. It is important not only what uses should be made of permanent fund interest but to a certain extent, what should be the target interest rate considering the uses of the interest. That is, if the interest is not put to good use, there should be relatively little concern with a high interest rate.

The basic issue, however, is whether the interest should be returned to the general fund without strings, should remain in the permanent fund for some period, or should be distributed to Alaska individuals who, in a sense, become the owners of the permanent fund.

The implications of each alternative on the growth of the economy and its fiscal condition will be considerably different. Reinvestment in the fund would have minimum impact in the short run. Transfer to the general fund would result in increased expenditures on state and local government which would have a stimulating effect on the economy with the impetus on increase in public sector activity. A transfer payment directly to individuals under some form of Alaska, Inc., project would provide an economic increase with a private sector impetus.

All of these kinds of expenditure programs can be analyzed with the MAP model framework. For this kind of analysis, which attempts to provide a picture of the relative impact of alternatives, specific program details are not necessary. The qualitative impacts would be the same regardless of whether a specific dividend amount were paid out as Alaska, Inc., payments or the available interest on the fund were distributed in that fashion. Here also, the state economic model can be used.

On the assumption that permanent fund investment will somehow be directed to the growth of certain industries, there is also a need for econometric simulations of the effects of expanding various Alaska industries on the state's economy as a whole, particularly on its employment and tax base.

4. Performance of soft loan programs. There are a number of existing state loan programs directed to social and economic development objectives. In general, they have loaned money at lower than prevailing commercial interest rates (but not necessarily at less than the state's "opportunity cost" of money). The actual quality of these funds' portfolios is unknown, however, and the actual rate of subsidy taking into account prospective future loan losses cannot, therefore, be determined. A systematic study should be made of this issue and its implications explored for administration of any soft loan program under the permanent fund.

Similar studies would be useful with respect to federal loan programs such as EDA and SBA, particularly concerning their Alaska activities. The experience and performance of International Development Agency programs and subsidized loan programs of other nations and states would also suggest problems which might be expected from any Alaska soft loan program established under the permanent fund.

THE ROLE OF PUBLIC ENTERPRISE

by

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My remarks for this conference are addressed first to the role of public enterprise generally, and second to some of the considerations involved in using public enterprise to foster greater control by the citizens of Canada and British Columbia over their own mineral industries. My view is that, generally, governmental ownership of producing operations is not the most effective way of accomplishing the social ends for which they are currently being advocated in these industries. Nevertheless I have a few suggestions how some of the major disadvantages of government enterprise with respect to efficiency and responsibility might be overcome.

Government-owned enterprises in the English speaking countries have seldom owed their existence to anti-capitalist ideology. It is in fact hard to detect any systematic difference in motive, organization or operation between the national, state (provincial) or municipal enterprises established during the incumbency of labor, socialist and agrarian radical parties and those implemented by tories of various names and complexions.

Despite the vast amount of government enterprise that exists today in capitalist countries, and despite the immense importance of socialist movements and socialist thought in the history of modern civilization, the scholarly literature on government enterprise is remarkably skimpy, and rigorous comparisons --- either theoretical or empirical --- of the economic performance of governmental and private enterprises in the same industry are, to the extent I can determine, nonexistent. For this reason, I have incorporated as annexes to my own remarks three background studies prepared by the Congressional Research Service of the United States Library of Congress. The first, concerning a Federal Oil and Gas Corporation is by Kent Hughes, and the second and third, on alternative market structures for the domestic oil and gas industry, and on making the oil industry a regulated public utility, are by Douglas N. Jones. I have a number of differences with the policy conclusions implied in these papers: their authors seem to survey the reasons for governmental enterprise or public utility-type regulation, but tend to ignore classic or currently salient economic arguments against such treatment. They are valuable, however, for their treatment of some of the issues, and some of the experience, I have not been able to cover directly in my own remarks.

The case for government ownership of undeveloped land and natural resource stocks rests on a broader base than that for producing enterprises. The intrinsic value of any resource in its natural state is the difference between the value of the goods that can be produced from it and the cost (in terms of labor, capital, materials and organization) required to produce them. As this residual is not the product of any person's labor or enterprise, it is almost an axiom of distributive justice that the intrinsic value of the resource should not be privately appropriated. Much of the value of a resource, or its appreciation over time, results from such diffuse causes as the increase in population, the general advance of technology, the decline in real transport costs, or directly from governmental outlays on roads or geological mapping and thereby favors its appropriation by a public entity.

Other classical grounds for government ownership of natural resources are the desire to control external costs or capture external benefits of their exploitation, and the expected divergence of private capital costs from the social rate of time preference, which results in too rapid (or too slow) development of the resource. While I am skeptical about the universal applicability of these last two arguments (who indeed knows what the social rate of time

preference is, and why would politicians and civil servants be expected to be more sensitive to it than entrepreneurs?), I believe that a presumption in favor of government ownership of undeveloped land and resources is generally justified.

Turning to productive enterprise, however, there are three main economic rationales for government ownership in a capitalist society:

First, is the use of the state to establish or maintain productive activity that would not be profitable as private eneterprise, but whose external benefits are deemed to justify a subsidy out of thepublic exchequer. A subsidy does not, of course, require state ownership, because either private or government enterprise could enjoy that subsidy. In either case support could take the direct form of providing capital or operating expenses from the Treasury, or the indirect form of tax exemptions and the use of public resources at less than their cost of fair market value. State ownership, however, may well make a subsidy more palatable, by avoiding the enriching (or appearing to enrich) a few private entrepreneurs.

Within the category of public ownership as a vehicle for subsidization are the numerous instances of private enterprises socialized because of chronic insolvency or imminent liquidation, including the Canadian National Railway, most of British Labour's nationalizations after World War II, and the recent takeover of rail passenger transportation by the United States government.

In other cases, the motive for government ownership has been the creation of "public goods," products (or by-products) of an enterprise whose value a private owner could not expect to recover by market pricing. Examples of such externalities are flood control by hydro-power projects and the promotion of literacy and national unification by the postal system.

Military necessity has been yet another justification for producing in state enterprises goods that might not meet the test of the private market. Instances range from the nineteenth century's lead mines, arsenals and plantations for naval stores, to the present-day processing of nuclear fuels. Many public transportation and communications ventures were begun on defense grounds; as an Alaskan, I immediately think of the ALCAN highway and the White Alice communications system.

Second among the rationales for public enterprise is the perceived inability of private business, because of the great size or risk of the venture in question, to assemble sufficient capital. This tradition in North America began with canal and rail ventures of the states in the early nineteenth century extended to river control and irrigation projects and continues up to the present in enterprises like COMSAT and Canada'a PanArctic Oil. In many of these cases, the proposed activity was expected to be self-sufficient in the long run on the basis of the revenues from its product or service, but state initiative was seen as necessary to take advantage of scale economies, or to overcome high risk threshholds.

Third and last of the circumstances which have been seen to justify government ownership are possession by an enterprise of monopoly power, or possession of exceptionally rich natural resources, either of which can produce substantial "unearned profits" or rents. Government ownership is one means of preventing monopoly exploitation of consumers (or monopsony exploitation of workers or sellers) and/or of collecting for the public treasury monopoly profits or resource rents that would otherwise be captured by the private owners.

Government takeover of profitable businesses has been rare in the English-speaking world. Here we do have a few instances of ideologically motivated nationalization, but it is instructive to note that these have often been reversed, as in the case of iron and steel in Britain and more recently the grain trade in India. The remaining cases have principally been those of utilities - grain elevators, street railways, water, electrical or telephone systems - which had a monopoly ("natural" or otherwise) in a local service area. In the last category it is often hard to distinguish between the instances where government took over to prevent private exploitation of monopoly power, and those in which government saw a monopoly as an assured source of revenue for itself.

There are, of course, a variety of cases which overlap two or all three of these categories. Economic development of a poor or sparsely settled region is often advanced as a justification for public enterprise in transport, communications, or electrical power on the premise that the region lacks capital or capital markets and only the state can mobilize resources on the desired scale. At the same time the project is seen to encourage growth by its ability to widen markets or otherwise to cut costs for commodity producing sectors of the regional economy. Once established,

moreover, such an enterprise may have a monopoly status and the power to abuse or exploit that status, and seem thereby to demand public control or ownership.

Many government enterprises (and regulated utilities, which they resemble in important respects) combine subsidies with appropriation of monopoly rents or resource rents. A common practice in both regulated private entities and government enterprise in transportation, communications and utilities is "cross-subsidization," in which monopoly profits earned from one area, line of business or class of customers are dissipated in subsidizing others that are deemed to be socially meritorious. Thus, airline and railroad tariffs on heavily travelled route segments typically exceed cost, (including a "fair" return) while service on lower density segments is provided at a loss (Though usually not an out-of-pocket loss). Also hydroprojects in the Western United States typically subsidize users of irrigation water from revenues earned by water sales to municipalities and industry, and by sales of electric power. In Alaska, stumpage fees in both state and federal timber sales are sacrificed to support otherwise uneconomic lumber and pulp mills.

Turning to the mineral industries of Western Canada, I see little that suggests they need to be subsidized by formation of a public corporation or otherwise. The Province of British Columbia, for example, does not have a great but decaying industry upon which the community is heavily dependent both for energy and employment, as Britain of the forties had in its collieries.

The B. C.-Yukon Chamber of Mines may from time to time assert that each mining job generates seven (or is it seventeen?) additional jobs in supporting industries, but there is no respectable analyticcal foundation for such a claim. Even if the extractive industries in fact had such an employment multiplier it does not necessarily follow that "job creation" is in itself a benefit that deserves a subsidy from the public purse, much less the creation of a government enterprise. New employment opportunities are a net benefit to the community only to the extent that the workers employed would not otherwise be productively employed. In an "open economy" like that of B.C. or my home state of Alaska, there is no predictable relationship between local job creation and local unemployment, because new employment opportunity tends

to attract immigrants who more or less offset the employment gain. Even if the new jobs directly created were reserved for long-time residents, displacement of residents from old to new jobs, and their replacement by non-residents, can be expected to have a similar effect.*

National self-sufficiency in materials and the earning or retention of foreign exchange are sometimes argued as external benefits of mining justifying preferential treatment, but neither reason is particularly relevant to Canada, which is and expects to be a net exporter of mineral products and has no chronic exchange problem. And, of course, protection of environmental quality or the fostering of an optimum geographical distribution of population can hardly be argued as benefits of the government's promotion of mining ventures which would not be self-supporting.

On the whole, it is hard to find a basis for any claim that mining (including oil and gas production) creates beneficial externalities for the surrounding community, as distinct from the net value of the minerals

* In a study aimed at projecting the employment impact of the Trans-Alaska pipeline, we found tha unemployment in individual labor market areas was almost totally insensitive to the level of employment; that is, on a net basis new jobs in petroleum, wood products and government were entirely filled by immigrants. (Tussing et al., 1971)

produced, or the factor payments (wages, profit, rents and taxes) which make up that value.

The current Canadian interest in state enterprise in the mineral industries does not seem, in summary, to be a result of the belief that they are inevitably unprofitable under private enterprise. On the contrary, it rests in part upon the notion that mineral extraction can indeed be very profitable, and that unearned profits (rents) ought to be controlled and disbursed in socially approved ways. One theme in this interest is a concern whether the people of the nation or of the Province, who are the nominal owners of its natural resources , are receiving the maximum possible return for the products of their land (or even more than they otherwise would). One issue is, in short, whether the state is effectively maximizing its revenues from disposal of minerals.

Where effective capital markets exist together with a large enough number of potential operators to create workable competition for resource rights, the government (as landlord and/or sovereign) is more likely to maximize its revenues if it does not engage in production. This conclusion does not

depend upon a presumption that government-owned entities are necessarily less enterprising and less effective in cost control than profit motivated private corporations. There surely is a tendency for state enterprises to be inefficient, if only because their standards of performance as viewed by either management or political authority, are seldom as clearly defined as is the imperative of the private manager to maximize the net worth of his firm. Conventional enterprises are, in addition, often under political pressure to pay higher than market rates for labor, services and supplies, and to sell their product in local markets at less than its opportunity value. Some of these pressures and their results might be regarded as benefits not shortcomings of public ownership, but they could, at least in principle, be measured or offset in the organization and terms of reference of a government corporation so that it would be an aggressive profit maximizer, if that result were desired.

Even so, however, by operation of a productive enterprise, the government loses the ability it would have as landowner to exploit, for its fiscal benefit and society's economic benefit, the competition among potential operators.

At oil and gas lease auctions in the United States, for example, the bid prices on a single tract may vary by a factor of two, ten or even one hundred. These variations reflect widely differing geological evaluations of the tract, exploration strategies, and circumstances of the various companies with respect

to capital and other costs. The result is that each tract tends to be won by the operator with the most favorable combination of expectations among all the bidders regarding the recoverable reserves and their development and lifting costs. The landlord who operates on his own land, however, has only one management team, one exploration strategy, one team of geologists and engineers and one supply function for capital. His operating performance over the average of all his properties is likely to be no better than average for the industry, leaving a residual between cost and revenue on each property only an average combination of profits and resource rents. If, however, he leases each tract to the highest bidder among a group of competing operators, he can expect to receive a greater rent on each property than the industry's average expectation would justify. This prediction is apparently confirmed in empirical studies of U. S. Outer Continental Shelf leasing by Walter Mead and Jesse Markham, which indicate that successful bidders on the average earn a discounted cash flow rate of return on lease acquisition costs substantially less than the oil industry's average rete of return on capital.

The most effective use of competition to optimize revenues does not dictate the use of a cash bonus bidding system for all minerals or even for petroleum under every circumstance. The degree of knowledge or uncertainty regarding the volume and value of minerals present and their cost of extraction, the relative weight of fixed and variable costs in total extraction costs, the number of potential competitors, and the relative preferences of the government and private operators for certain present income versus uncertain future income, are all appropriate considerations in the choice of leasing or disposal systems and taxes on the mineral industries. I have written on these questions elsewhere (Tussing and Erickson, 1969) and it is evident from the agenda of this conference that other papers will give close attention to the relative merits of location, leasing and sale of minerals; royalties and severance taxes on gross value as against net profits; no bonuses, cash bonuses, and deferred bonuses; the use of acreage rentals; the optimum size and configuration of tracts; the amount of geological information the landlord ought to obtain and publish before opening land for lease or disposal; duration of the primary term of a lease or permit, and its terms for renewal, etc.

In summary, state enterprise in the business of developing and producing minerals is surely one way to capture and redistribute resource rents, but it is likely not as effective a device to maximize those rents as the appropriate combination of a leasing system that takes full advantage of competition among private firms, considering the technology and institutional characteristics of each branch of the mining industry, together with an appropriate tax system.

The most powerful cases for public enterprise in developing regions (like much of Western Canada and the Territories) refer to transport and other infrastructure facilities which create external economies for other economic sectors, including mining. In these instances both the first motive for socialization (the desire to subsidize) and the second (the need to overcome barriers of scale and risk) may justify investment by the government on projects which private enterprise will not venture. Neither of these general motives, however, creates a case for state enterprise in mineral extraction itself. Capital and enterprise for mineral exploration and development are plentiful and mobile. Specialized technical inputs, such as geophysical surveys, drilling and heavy construction can be purchased on contract in a highly competitive market (so that great petroleum and mining companies do very little of these activities for themselves). Capital sums in the hundreds of millions, or even billions, of dollars can be mobilized privately even without government guarantees for projects in remote regions,

like the Arctic Gas pipeline.

Development of minerals, like collection of revenues, is likely to be more rapid and more efficient if it utilizes the diversity of skills, techniques, erterprise and access to capital in the private economy and the competition between firms differently endowed in these respects. Nationalization or municipalization of producing operations, in my view, has an inevitable price both in state revenues and in social efficiency the payment of which price must be justified on other grounds.

The hard core of Canadian interest in public enterprise today seems to stem not from a perceived shortage of capital and entrepeneurship (much less an ideological opposition to capitalistic enterprise as such), but from a perceived surplus of foreign capital and entrepreneurship. The problem, it seems, is to assure that mineral development (and presumptively, related activities like oil refining or oil and gas transportation) are under the control of Canadians or the people of British Columbia, rather than great multinational (read United States) corporations.

It is probably not politic of me as an American to ask what practical difference the nationality of a company's owners or management makes as long as it is subject to the same laws (and obeys them) and pays

its proper share of taxes. Our own satisfactions and grievances regarding the major oil companies apply in the same way to Mobil and Texaco, which are domestically controlled as to Shell and SOHIO, which are foreign controlled. As I have indicated previously, I don't believe you can squeeze any more in the way of real resources for Canadians out of your government-owned business than you could out of American or Canadian-owned private enterprise under a well designed leasing and tax system. Nonetheless, one billion American dollars invested in Canada is more conspicuous than one billion Canadian dollars invested in the U.S., and the nationality of your managers and stockholders does make a difference to many Canadians.

Government enterprise is one way to "nationalize" the mineral industries but it is not, of course, the only possible way to foster Canadian equity and enterprise. Stricter nationality criteria could well be applied to holders of claims and leases or of permits to build pipelines, concentrating plants and refineries. Such policies raise a further question, however, "is there in fact enough private equity capital and enterprise in Canada effectively to take the place of foreign equity and enterprise?" This is an empirical question to which I haven't an answer. If the answer is "no", however, the use of government funds and management

implies a subsidy in some form, because the establishment of a government enterprise does not create any new Canadian resources. It only uses tax money or resource rents foregone to bid capital and talent away from some other employment. The cost of Canadianization (either by restrictive licensing of private industry or by government enterprise) may be minimal, however if preferences for nationals result in bidding home significant amounts of Canadian capital and Canadian talent which would otherwise be employed in the United States. (Presumably, the net effects of even these moves would have to take into consideration the remittance that would otherwise flow.)

Government capital need not always be regarded as substitute for private capital, Canadian or foreign. In North America during the first half of the nineteenth century, and in almost every country at one time or another, state companies were used as a vehicle to attract foreign (usually British) debt or equity capital to ventures they would not otherwise consider. A government-owned (or guaranteed) railroad company was often naively regarded by the London money market as a safe investment, while the promotions of an unknown overseas entrepreneur would be viewed with great skepticism.

The use of government participation is still a major instrument for encouraging foreign investment in developing areas. Joint ventures between American, European or Japanese private companies, and governmental entities of the host country are common in almost all the extractive industries and in many countries at different levels of economic development. Canada has at least one government enterprise created largely with this function in mind, Quebec's SOQUEM, whose activity consists mainly of joint ventures in mineral exploration with private companies.

In addition to being a means by which domestic enterprise becomes a trustworthy borrower (or partner) of foreign capital, state enterprise can be a means of offsetting a shortage of domestic equity and entrepreneurship. In this role it has one advantage over promotion of domestic private enterprise through nationality restrictions on investment, management or licenses; it avoids the spectre of open discrimination, which could lead to retaliation and otherwise undermine trade and investment relationships that are beneficial to Canada. The nearly open border allows this country to draw on a much larger pool of capital, technology and talent than it would with policies fostering autarky. Although this openness is a major element in the ambiguity and insecurity of

Canada's national identity, its economic benefits to Canada are relatively greater than they are to the United States. (That is, its impact on the size of the resource pool available to Canada is greater than on the size available to the United States.) It is therefore a circumstance to be modified only carefully, and selectively. Establishment of a Provincial oil company is one way to contain the side effects of a move in the direction of autarky in a single industry. It might, in fact, limit these side effects even in the industry in question: suppose the best candidate for executive officer for a British Columbia based oil company were a Texan; you might well have fewer misgivings about hiring him to work for the Province than you would about his heading a subsidiary of an American private firm.

I have only recently had an opportunity to read the B.C. Petroleum Corporation Act, and Bill C-236 to establish a Canadian national petroleum company, and I will not comment on them specifically. I do, however, have some suggestions for the structure and policy of public corporations in the mineral industry, aimed at combining some of the best features of government and private enterprise rather than their worst features (as so often happens).

First, before establishing a governmental enterprise, be clear what its purpose is to be, what the incentive for the management to accomplish their purpose will be and (in quite rigorous quantitative terms) how the citizens who presumably own the enterprise will know whether or not it is successful. (I owe this first and most vital point to Milton Moore's critique of the draft of this paper).

Second, do not set up a monopoly. There is no surer formula for inefficiency and social irresponsibility. Economies of scale do exist in mining, but they are very small compared to the opportunities for development in an area the size of British Columbia. In petroleum refining, the minimum efficient size of refinery is probably now about the size of the B.C. market, but if a new government-owned refinery needs a monopoly protectionist legislation to be profitable, it will almost certainly be a serious burden on consumers. If a government company is to be set up in an industry where scale economies are narrow and where ingenuity and intutition are still crucial, as in mineral exploration or onshore oil and gas production, consideration might be given to establishment of more than one competing public enterprise.

Third, do not clothe the corporation in sovereign immunities. Such immunity can be and often is a cover for inefficiency, irresponsibility and even lawlessness. The corporation should be suable, pay taxes or their equivalent (federal, provincial and local), and be subject to environmental and safety laws and regulations, and even to the bankruptcy laws. It should not be protected by any version of an official secrets act. There is no good reason why the directors, officers and employees should be excused from the the same civil and criminal liability for their actions to which their counterparts in private enterprise are subject.

I would urge hesitation even in providing guarantees for the corporation's debt. The corporation will be pursuing a line of business in which private enterprise regularly borrows money without such guarantees. The more intense scrutiny of bankers and underwriters toward a corporation whose debt must stand on its own merit, might well save the corporation's owners more money than the interest differential associated with government guarantees.

Fourth, give the public and the corportion's officers and staff a material interest in its success and its efficiency. The government need not hold all the shares but only a controlling interest, not necessarily even a majority. One block of shares (enough to elect at least one director) can be held in trust for the company's employees and voted by them. The remainder of the shares would be offered to the public; they would be voted by their owners, and publicly traded. Not only would this provision broaden interest and participation in management, but the market price of publicly traded shares would be a continuing indicator of management performance and of the value of the governments's equity. I see no compelling reason to restrict share ownership to residents; it might in fact be useful to encourage minority participation by major oil companies or mining companies. A residence requirement for shareholders, however, would reinforce symbolically the corporation's identity as a national or provincial instrument, and would, of course, limit remittance of dividends abroad.

Fourth, the corporation's policies should be responsive to public policy but not bend to every political wind. I would suggest a minority of the government directors serve at the pleasure of the Cabinet and be regarded as spokesmen for its policies. The remaining directors representing the government's equity would be chosen indirectly for long and staggered terms.

Sixth, the corporation should be under pressure to pay dividends. A majority of all the shares (and directors) should represent parties who have a material interest that the corporation not retain, reinvest or dissipate all its earnings: private shareholders, the employees, and the members who serve at the pleasure of the Cabinet (who would presumably be responsive to the fiscal interests of the government). The influence of this group will be a constant corrective to tendencies of management, inside directors and permanent directors toward complacency, empire-building, pyramid-building or gold plating

Seventh, maintain a clear distinction between the corporation and the government as landowner. The public enterprise should obtain resource rights on Crown lands only in competition with other prospective operators. The corporation should not receive a concealed (and indeterminate) subsidy by access to resources at no charge or at a lower price than a competitor might offer. If it must have a preference right, let it be at most a right to match the high bidder.

A preference right on the best offshore leases is a feature of the federal oil and gas corporation (FOGCO) proposed recently in the United States Congress. In view of the prices oil companies have been recently willing to spend in these lease sales, such a preference would guarantee that FOGCO would appear profitable, however imcompetent its management, and that the federal treasury would lose billions of dollars in lease revenues.

Eighth and finally, take advantage of the division of labor and competition. The Corporation should not attempt to do for itself the things that even the greatest oil and mining companies contract out to others, such as seismic surveying, core drilling, well drilling, well logging and construction. There is virtually no chance that a state corporation could improve on the performance of private firms in these exceedingly competitive areas.

In summary, I am generally skeptical of the case for public enterprise in the minerals industry, but hopeful that such enterprises could be established free of many of their usual shortcomings if some thought is given to their purpose, organization and standards of performance.